Smart Wi-Fi for WAREHOUSES
Smarter Wi-Fi Increases Operational Efficiency

IT’S THE STRONGEST LINK IN YOUR SUPPLY CHAIN.

As warehouses become increasingly reliant on wireless devices and applications to fine tune their logistics business — the need for fast, pervasive, and reliable Wi-Fi coverage is a top priority.

No Ethernet? No Problem
Running Ethernet cable can be a huge challenge for pre-existing structures, and warehouses are no exception. With WLANs quickly becoming the preferred network backbone for application and device connectivity, Ruckus self-organizing and self-healing SmartMesh is the logical choice for extending wireless connectivity across buildings, eliminating the need and additional expense of pulling CAT5 cabling to every Access Point (AP). Ruckus SmartMesh utilizes best path selection and interference avoidance techniques to ensure reliable and ubiquitous Wi-Fi coverage, which is essential for RF-challenged warehousing environments. Ruckus makes meshing as easy as selecting a check box within the Ruckus ZoneDirector interface.

Simply Better Connections For Mobile Devices
Wireless-enabled handheld devices pose serious connectivity challenges within warehouse environments. Unlike laptops, the orientation of mobile devices is constantly changing, making it harder for Wi-Fi systems to deliver a rock solid signal. Traditional omnidirectional antennas were never developed to deal with this type of mobile client, often resulting in dropped connections and unstable Wi-Fi performance. The Ruckus ZoneFlex adaptive antenna technology selects the best signal path for every packet, even as devices move about or as warehouse configurations change. This patented antenna array automatically detects the client devices and sends signals that are vertically or horizontally polarized — remembering each client and its location. The result is consistent and predictable performance you can count on, particularly in warehousing environments that are in a constant state of flux.
Ruckus Smart Wi-Fi delivers
MORE CONSISTENT PERFORMANCE
at longer distances

High Density: 90 active clients per AP
adaptive antennas + conventional Wi-Fi
learning-based SON implementations

Source: Syracuse

Interference: 6 APs, 120 clients, 1 busy rogue AP

65% improvement (average)

95% improvement (average)
total TCP throughput

Double Capacity and Coverage With Fewer Access Points

Traditional dipole omnidirectional antennas are not able to alter the
Wi-Fi signal path, thus more APs are required to cover a given area.
Ruckus changes the playing field with its own patented, high-gain,
directional adaptive antenna array integrated into every AP, creating
an unmatched wire-like performance with 2 to 4x the coverage
range, which on average requires 30 to 50% fewer access points.
This translates into lower infrastructure OPEX and CAPEX and a
faster return on investment. By employing Ruckus’ dual-band indoor
and outdoor access points, warehouses can now have an industrial
strength Wi-Fi infrastructure that delivers consistent performance
everywhere, ensuring zero down time or diminished productivity.

Patented smart antenna arrays in every access point provide longer range and more reliable
Wi-Fi connections, requiring fewer APs than competitive alternatives.

Simple, Simple, Simple Configuration

The Ruckus ZoneFlex system is the industry’s simplest
WLAN system to configure and deploy. It offers one of
the most advanced feature sets without the cost and
complexity typically associated with high-end Wi-Fi
systems. Configured in minutes and deployed in hours, the
ZoneFlex system uses an intuitive Web-based wizard.
Once configured, APs are simply plugged into a power
source or PoE and self-provisioned by automatically
discovering the ZoneDirector controller or FlexMaster Wi-Fi
management system. APs can be deployed in standalone
mode or as part of a centrally managed, full-featured WLAN.
ZoneDirector controllers are deployed out of the datapath
— eliminating performance bottlenecks or the possibility
of becoming a single point of failure.

Client BYOD/Guest Network Enrollment

Ruckus’ Cloudpath bridges the gap between enterprise-grade and
personal devices to create a secure and simplified Wi-Fi experience
that allows BYOD to be adopted in a scalable, secure, and user-
friendly manner.

Cloudpath utilizes standards-based security to work with existing
infrastructure and provides full functionality with any Wi-Fi solution.
Cloudpath solutions deliver secure, reliable connectivity around the
globe.

The increasing demand for visibility in today’s global supply chain means access to network
services are indispensable elements for visitors, contractors, and associates.
**TOP 10**

**RUCKUS DELIVERS TOP 10 WI-FI MUSTS FOR WAREHOUSING**

1. **Wi-Fi coverage everywhere**
   2 to 4x coverage improvement through integrated long-range, high-gain antenna arrays integrated within every Ruckus AP

2. **Unparalleled client connectivity**
   Ruckus' adaptive antenna technology has multiple antenna arrays allowing for complete connectivity

3. **Consistent performance at range**
   Ruckus' adaptive multi-antenna technology with client feedback ensures consistent, reliable, and fast connections to the end client

4. **Remote management**
   Indoor and outdoor APs can be managed remotely as one through a single interface

5. **No new cabling**
   Ruckus SmartMesh technology allows for easy meshing to endure coverage without laying new cabling in difficult to deploy environments

6. **Flexible deployment options**
   Deploy APs as stand alone or with the controller; controllers can be onsite or offsite and managed remotely

7. **Location Based Services (LBS)**
   Ruckus offers Smart Positioning Technology (SPoT) providing key location data, such as footfall traffic visualization via heat-map by zone, floor, and venue

8. **Easy to configure and deploy**
   For warehouses with limited IT resources, Ruckus’ graphical user interface is easy to use and understand

9. **Simple security**
   With dynamic PSK, you can be assured of deploying a secure network without the need for extensive IT resources or security expertise

10. **Client Network Enrollment**
    Ruckus Cloudpath provides secure BYOD/Guest network onboarding.

**Advanced Wi-Fi Management That’s Ultra Intuitive**

Management and administration of a wireless LAN system has never been simpler—whether onsite or remote. No complex or difficult to understand menus full of confusing options. Instead, administrators simply point and click through an intuitive, graphical user interface, purposely designed for simplicity. A customizable, widget-based dashboard provides a complete at-a-glance view of the system that includes information about system usage, recent user activity, most active clients, most frequented access points, rogue devices, and real-time statistics — simplifying the troubleshooting process — perfect for warehouse environments with an already overextended IT staff.

**Long-range, point-to-point/multipoint 802.11ac extends broadband connectivity.**

**Long-Range Wi-Fi Broadband saves Big Bucks**

To save time and recurring monthly broadband charges, warehouses can use long-range smart Wi-Fi bridges over distances of 1 to 8 miles. 802.11ac 5GHz Wi-Fi bridges deliver from 50 to 500 Mbps of high-capacity broadband connections into warehouse facilities — saving potentially tens of thousands of dollars every year by eliminating costly fixed line connections to remote sites.
**Warehousing Companies Are Choosing Ruckus Smart Wi-Fi Solutions To Solve Challenges**

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<thead>
<tr>
<th>PROBLEM</th>
<th>RUCKUS SMART WI-FI SOLUTION</th>
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<tbody>
<tr>
<td>Spotty Coverage</td>
<td>Ruckus’ adaptive antenna technology extends Wi-Fi signals 2 to 4x times farther, requiring fewer APs per location</td>
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<tr>
<td>Complex Installation And Management</td>
<td>Long range high-gain access points require fewer nodes to cover a given area and allow Wi-Fi services to be offered in areas where Ethernet cabling doesn’t exist or can’t be pulled via advanced wireless meshing</td>
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<tr>
<td>Recurring Monthly Broadband Costs</td>
<td>Long-range 802.11ac Wi-Fi point-to-point/multipoint bridges eliminate fixed broadband costs while delivering 50 to 500 Mbps of connectivity at a distance of up to 8 miles</td>
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<td>Controllers In Each Warehouse</td>
<td>The ZoneDirector allows IT administrators to remotely manage warehouses throughout the network through one controller</td>
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<td>Unified Network</td>
<td>Indoor and outdoor networks access points mesh together and managed centrally by the ZoneDirector</td>
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<td>Extends Wi-Fi to Areas Without Ethernet</td>
<td>Provides meshing for indoor and outdoor APs that enables Wi-Fi signals to be extended without Ethernet drops and remotely managed by the ZoneDirector</td>
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<td>Too Many APs To Manage</td>
<td>Requires one-third to one-half the number of APs over conventional omni-directional Wi-Fi products</td>
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<tr>
<td>Unstable Wi-Fi Connectivity</td>
<td>Patented adaptive antenna technology dynamically forms its beam on roaming clients ensuring stable connectivity and mitigating packet loss to ensure the highest performance</td>
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WOW Logistics, one of the nation’s largest 3PL companies, manages millions of dollars of customer inventory throughout its warehouses. With 23 locations spanning nearly 7 million sq. ft., ceiling heights ranging from 35 to 40 feet tall, and drive through steel racks that go five pallets high and four pallets deep, WOW needed a Wi-Fi solution specifically designed to adapt and deal with their ever-changing, obstacle-ridden RF environment.

With requirements that ranged from providing wireless for inventory tracking, back office applications, to guest and employee access — WOW wanted an 802.11n solution designed to provide pervasive wireless connectivity — no matter what.

Meeting their financial, coverage, and throughput requirements, WOW replaced its legacy Motorola APs with Ruckus ZoneFlex dual-band 7363 APs at its corporate headquarters and Ruckus ZoneFlex 7962 APs at all of their managed warehouse locations.

“We have a very diverse set of businesses, applications, users, and devices — all of which require robust wireless to maintain operational efficiency. The adaptive antenna technology eliminates flaky coverage and reliability issues that have plagued Wi-Fi in the past.”

Nathan Wiegand
Network Manager

Looking ahead, WOW is interested in rounding out their operations by adding wireless location-based tracking and video surveillance.
Ruckus Smart Wi-Fi Delivers
Warehousing’s Most Flexible Deployment Options

INTERNET ACCESS, VOIP, GUEST NETWORKING, LOCATION BASED SERVICES, BOM IMAGING,
BACK OFFICE ADMINISTRATION, STAFF ADMINISTRATION, SUPPLY CHAIN OPTIMIZATION

End-to-End management with controllers or software
Dual-band outdoor APs adaptively mesh with other indoor/outdoor APs
Long-range point-to-point/multipoint 802.11ac Wi-Fi bridging
Advanced and intuitive Wi-Fi troubleshooting tools
Dependable connectivity for mobile users/devices
**Complete Portfolio for WAREHOUSING**

<table>
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<tr>
<th>Product</th>
<th>Description</th>
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<tr>
<td>ZoneFlex R710</td>
<td>Indoor dual band 4x4:4 802.11ac AP with integrated smart antenna array and PoE (802.3af/at) support</td>
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<tr>
<td>ZoneFlex R500</td>
<td>Indoor dual-band, 2x2:2 802.11ac AP with integrated smart antenna array and PoE (802.3af/at) support</td>
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<tr>
<td>ZoneFlex R310</td>
<td>Entry level dual band, 2x2:2 802.11ac AP with integrated smart antenna array and PoE (802.3af) support</td>
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<tr>
<td>ZoneFlex T300</td>
<td>Outdoor dual-band, 3x3:3 802.11ac AP with integrated smart antenna array and PoE (802.3at/af) support</td>
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<td>Cloudpath</td>
<td>Cloudpath creates a Set-It-And-Forget-It Wi-Fi experience that allows BYOD to be adopted in a scalable, secure, and user-friendly manner</td>
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<td>SPoT</td>
<td>Cloud-based Smart Wi-Fi location-based services (LBS) user positioning technology suite and API</td>
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<td>ZoneDirector Controllers</td>
<td>Central wireless LAN controllers supporting from 6 to 1,000 Ruckus APs</td>
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<td>SmartZone Controllers</td>
<td>Industry’s most scalable and versatile WLAN platform</td>
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<td>Virtual SmartZone</td>
<td>Linux-based remote Wi-Fi system management software</td>
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Smart Wi-Fi

Designed and Built for Pervasive Performance...
Available from Ruckus Wireless